

LIGHTS OUT: IMPACT OF THE AUGUST 2003 POWER OUTAGE ON MORTALITY IN NEW YORK, NY

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Background and Aims: In the United States, energy use is increasing, which stresses the aging power grid, creating frequent possibilities for power outages. Energy infrastructure is critical for national security, and power outages could increase from global climate change because of increased demand for energy on hot days and more frequent extreme weather. However, little is known about how power outages affect human health, despite the potential of such information to improve emergency planning.

Methods: Here we investigate all-cause mortality in New York, NY, during the August 14-15, 2003, blackout. We modeled mortality in New York, NY, 1987-2005, using a generalized linear model and modeled daily mortality rates using a Poisson distribution with overdispersion, based on methods used to study health effects of air pollution, temperature, and heatwaves. We used an indicator to model the days of the blackout and controlled for time-varying factors including day of week, weather, and long-term and seasonal mortality trends.

Results: Mortality spiked for both accidental deaths (122.1% increase; 95% confidence interval: 27.6%,286.8%) and non-accidental deaths (25.3%; 11.7%,40.5%), resulting in approximately 90 excess deaths. Increased mortality did not result from deaths being advanced by a few days; rather, for the remainder of August 2003, mortality risk remained slightly elevated.

Conclusions: To our knowledge, this is the first investigation of the effects of a power blackout on non-accidental mortality. Understanding impacts of power outages on human health is important, given that increased energy demand and climate change are likely to strain power grids, and terrorist attacks on power grids remain a security concern.